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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,882

09/27/2005

Hideo Itoh

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11/21/2008

WENDEROTH, LIND & PONACK, L.L.P.

2033 K STREET N. W.

SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

SHOLEMAN, ABU S

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,882	<b>Applicant(s)</b> ITOH ET AL.	
	<b>Examiner</b> ABU SHOLEMAN	<b>Art Unit</b> 4148	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☒ Claim(s) 1 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/17/2008, 05/29/2008 and 08/01/2005</u> .                   | 6) <input type="checkbox"/> Other: _____                          |



### **DETAILED ACTION**

1. This instant application having application NO.10/529882 filed on 09/27/2005 is presented for examination by the examiner.

#### ***Oath/Declaration***

2. The applicant's oath/declaration had been reviewed by the examiner and is found to conform to the requirements prescribed in 37.C.F.R.1.63.

#### ***Priority***

3. As required by M.P.E.P.201.14(c), acknowledgement is made of applicant's claim for priority based on applications filed on October 3, 2002(JP 2002-290818) and August 19, 2003(JP 2003-295077).

#### ***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on the information disclosure statement (IDS) submitted on 09/17/2008,05/29/2008 and 08/01/2005 have been acknowledged . The submission is in compliance with the provisions of 3 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Drawings***

5. The drawings are received on 04/01/2005. These drawings are acceptable for examination purpose.

#### ***Claim Objections***

6. Claim 1 is objected for the following reason. Claim 1 recites the limitation "the collected image" in page 30, line 10. There is insufficient antecedent basis for this limitation in the claim.

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7. Claim 17 is objected for the following reason. Claim 17 recites the limitation “the collected image” in page 32, line 4, there is insufficient antecedent basis for this limitation in the claim.

8. Claim 25 is objected for the following reason. Claim 26 recites the limitation “the collected image” in page 33, line 8, there is insufficient antecedent basis for this limitation in the claim.

9. Claims 5, 13, 21 and 29 are objected for the following reason. Those claims recite “a two dimensional light distribution”. There is insufficient explanation about a two dimensional light distribution in this specification. For examiner purpose, examiner is considering a two dimensional light distribution as a normal light distribution.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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11. Claims 9-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tompkin et al (Machine -verifiable diffractive features for document security)(hereinafter Tompkin).

**As per claim 9**, Tompkin discloses “ A light emitting device comprising” as ( Page 203, see introduction , line 1-2, optically variable devices ) : “display means for displaying an image in which authentication information is incorporated” as (page 207, line 3-4, images are projected onto symmetrically located viewing screen , So Screen is display means.) ; and “optical system means for diffracting light of the displayed image at a predetermined angle for each pixel” as ( page 207, line 10-12, OVD optical system is illuminated by diode , the light is diffracted into a prescribed intensity distribution which can be measured by an appropriately designed reading device ).

**As per claim 10**, Tompkin discloses “wherein the display means and the optical system means are arranged so that in the image which is displayed by the display means” as ( Tompkin, page 204, line 7-8, teaches that OVD is optical system and the image will appear on the screen ) , “the image corresponding to the authentication information is diffracted and the image other than authentication information is emitted in a direction substantially perpendicular to a display screen of the display means” as (Tompkin, page 204, line 18-19,

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teaches that OVD is rotated or turned by any degree , if the rotated degree is 90 then both images will display perpendicularly to the screen ) .

**As per claim 11**, Tompkin discloses” wherein the image is displayed from the display means in accordance with an inquiry signal from an outside device” as ( page 204, line 8-11, The same images will appear on the screens and the reconstructed image is determined by the carrier frequency and , hence , the recording geometry. Two images are always present, but often only one is projected onto a screen ).

**As per claim 12**, Tompkin discloses “wherein the optical system means is a lens array which utilizes one dimensional light distribution” as ( page 208, Fig 6, and page 211, line 8-9, Optics and detector array are lens arrays , those arrays produce one dimensional light distribution ).

**As per claim 13**, Tompkin discloses “ wherein the optical system means is a lens array which utilizes two dimensional light distribution” as (page 204, line 12-13, two-dimensional object is recorded as a phase mask which reconstructs the object upon illumination ).

**As per claim 14**, Tompkin discloses “wherein the image is a hologram pattern” as (page 204, line 11-12, Computer generated hologram from images ).

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**As per claim 15**, Tompkin discloses "wherein the image is a graphic pattern which does not exhibit hologram effect" as (page 204, line 11-14, The kinoform is a CGH which puts all diffract light into the final image , if final image pattern get changed it does not effect hologram ).

**As per claim 16**, Tompkin discloses "wherein the optical system means is a lens array comprising a plurality of lenses, and gaps are provided between the lenses" as (page 211, line 8-9, The diffractive optical code of the sample using a cylindrical lens and there are gaps between lenses in the OVD ).

**As per claim 17**, Tompkin discloses "An authentication device" as ( page 208, line 11-12, The computer to authenticate ) comprising: "optical system means for collecting light of an image scattered at a predetermined angle by an outside device" as (Page 211, line 6-7, The optical core of the reader of the light source); "photoelectric converting means which carries out photoelectric conversion of the collected image" as (page 211, line 6-7, processing electronics are done after collecting image from the detector array ) ; and "control means which carries out authentication using the converted image" as (Page 208, line 11-12, The OVD is illuminated and the signals of the eight detectors are demodulated and processed to allow the computer to authenticate and identify the diffractive Area code ).

**As per claim 18**, Tompkin discloses " wherein an image corresponding to authentication information in the image is diffracted and an image other than the



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authentication information is not diffracted” as ( page 208, Fig 6, The integrated diffractive area code produce a diffraction for the authentication information of the image it does not diffract whole image).

**As per claim 19**, Tompkin discloses “wherein an inquiry is made for requesting the outside device to output the image” as ( page 209, Fig 7, prototype reader is inquiring for an image from the diffractive area code).

**As per claim 20**, Tompkin discloses “ wherein the optical system means is a lens array which utilizes a one dimensional light distribution” as (page 208, Fig 6, and page 211, line 8-9, Optics and detector array are lens arrays , those arrays produce one dimensional light distribution ).

**As per claim 21**, Tompkin discloses “wherein the optical system means is a lens array which utilizes a two dimensional light distribution” as (pase 204, line 12-13, two-dimensional object is recorded as a phase mask which reconstructs the object upon illumination ).

**As per claim 22**, Tompkin discloses "wherein the image is a hologram pattern” as (page 204, line 11-12, Computer generated hologram from images ).

**As per claim 23**, Tompkin discloses “wherein the image is a graphic pattern which does not exhibit hologram effect” as ( page 204, line 11-14, The

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kinoform is a CGH which puts all diffract light into the final image , if final image pattern get changed it does not effect hologram ).

**As per claim 24**, Tompkin discloses “wherein the outside device has an optical system means for diffracting light, said optical system means is a lens array comprising a plurality of lenses, and gaps are provided between the lenses” as ( page 211, line 8-9, The diffractive optical code of the sample using a cylindrical lens and there are gaps between lenses in the OVD ).

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 1-8 and 25-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tompkin et al (Machine -verifiable diffractive features for document security)(hereinafter Tompkin) in view of YamaKawa et al ( Patent number:4792685) (hereinafter Yamakawa).**

**As per claim 1**, Tompkin discloses "An authentication system ( Page 208, See Fig 6. Schematic of the optical head) comprising: “a light emitting device

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(Page 208, line 2-3, a laser diode )having display means for displaying an image in which authentication information is incorporated” as ( page 207, line 3-4, images are projected onto symmetrically located viewing screen ) and “first optical system means for diffracting light of the displayed image at a predetermined angle for each pixel” as (page 207, line 10-12, OVD optical system is illuminated by diode , the light is diffracted into a prescribed intensity distribution which can be measured by an appropriately designed reading device ); and “control means which carries out authentication using the converted image” as ( Page 208, line 11-12, The OVD is illuminated and the signals of the eight detectors are demodulated and processed to allow the computer to authenticate and identify the diffractive Area code ), **but fails to expressly disclose** “an authentication device having second optical system means for collecting the light of the image diffracted by the light emitting device, photoelectric converting means which carries out photoelectric conversion of the collected image”.

However, Yamakawa discloses “an authentication device having second optical system means for collecting the light of the image diffracted by the light emitting device” as (Yamakawa, column 2, line 62-64, teaches that the concave mirror constitutes a light collecting optical system for collecting and reflecting signal lights), “photoelectric converting means which carries out photoelectric conversion of the collected image” as (Yamakawa, column 3, line 35-38, teaches

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that the collected signal lights are applied to the photoelectric element where they are converted into electric signals ).

Tompkin and Yamakawa are analogous arts because they are the same field of endeavor of the document security.

Therefore, It would have been obvious to one of the ordinary skill in the art at the time of the invention was made to modify the teaching of Tompkin by including a optical system with photoelectric converter that taught by Yamakawa because it would provide a better visual security device (Tompkin, Page 213, line 5-6, teaches that a better visual security device).

**As per claim 2**, Tompkin discloses “ wherein the display means and the first optical system means are arranged so that in an image which is displayed by the display means” as (Tompkin, page 204, line 7-8, teaches that OVD is optical system and the image will appear on the screen), “the image corresponding to the authentication information is diffracted and image other than the authentication information is emitted in a direction substantially perpendicular to a display screen of the display means” as (Tompkin , page 204, line 18-19, teaches that OVD is rotated or turned by any degree , if the rotated degree is 90 then both images will display perpendicularly to the screen).

**As per claim 3**, Tompkin discloses “wherein the image is displayed from the light emitting device in accordance with to an inquiry signal from the

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authentication device” as ( page 208, Fig 6, line 12-13, computer to authenticate the image that is illuminated from laser diode ).

**As per claim 4** , Tompkin discloses "wherein the first optical system means and the second optical system means are lens arrays which utilize a one dimensional light distribution” as (page 208, Fig 6, and page 211, line 8-9, Optics and detector array are lens arrays , those arrays produce one dimensional light distribution ).

**As per claim 5**, Tompkin discloses " wherein the first optical system means and the second optical system means are lens arrays which utilize a two dimensional light distribution as ( pase 204, line 12-13, two-dimensional object is recorded as a phase mask which reconstructs the object upon illumination) .

**As per claim 6**, Tompkin discloses "wherein the image is a hologram pattern” as ( page 204, line 11-12, Computer generated hologram from images).

**As per claim 7**, Tompkin discloses “ wherein the image is a graphic pattern which does not exhibit hologram effect " as ( page 204, line 11-14, The kinoform is a CGH which puts all diffract light into the final image , if final image pattern get changed it does not effect hologram).

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**As per claim 8**, Tompkin discloses “wherein the first optical system means is a lens array comprising a plurality of lenses, and gaps are provided between the lenses” as ( page 211, line 8-9, The diffractive optical code of the sample using a cylindrical lens and there are gaps between lenses in the OVD).

**As per claim 25**, Tompkin discloses “An authentication method comprising the steps of: displaying, from display means, an image in which authentication information is incorporated” as (page 207, line 3-4, images are projected onto symmetrically located viewing screen ), “diffracting light of the displayed image at a predetermined angle for each pixel by first optical system means” as( page 207, line 10-12, OVD optical system is illuminated by diode , the light is diffracted into a prescribed intensity distribution which can be measured by an appropriately designed reading device), and “carries out authentication by control means using the converted image” as ( Page 208, line 11-12, The OVD is illuminated and the signals of the eight detectors are demodulated and processed to allow the computer to authenticate and identify the diffractive Area code ), **but fails to expressly disclose** “collecting, by second optical system means, light of the image diffracted by the first optical system means, carrying out photoelectric conversion of the collected image by photoelectric converting means” .

However, Yamakawa discloses “collecting, by second optical system means, light of the image diffracted by the first optical system means” as

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(Yamakawa, column 2, line 62-64, teaches that the concave mirror constitutes a light collecting optical system for collecting and reflecting signal lights), “carrying out photoelectric conversion of the collected image by photoelectric converting means ” as (Yamakawa, column 3, line 35-38, teaches that the collected signal lights are applied to the photoelectric element where they are converted into electric signals ).

Tompkin and Yamakawa are analogous arts because they are the same field of endeavor of the document security.

Therefore, It would have been obvious to one of the ordinary skill in the art at the time of the invention was made to modify the teaching of Tompkin by including a optical system with photoelectric converter that taught by Yamakawa because it would provide a better visual security device (Tompkin, Page 213, line 5-6, teaches that a better visual security device).

**As per claim 26**, Tompkin discloses “wherein the display means and the first optical system means are arranged so that in the image which is displayed by the display means” as ( Tompkin, page 204, line 7-8, teaches that OVD is optical system and the image will appear on the screen), “the image corresponding to the authentication information is diffracted and the image other than authentication information is emitted in a direction substantially perpendicular to a display screen of the display means” as (Tompkin , page 204,

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line 18-19, teaches that OVD is rotated or turned by any degree , if the rotated degree is 90 then both images will display perpendicularly to the screen ).

**As per claim 27**, Tompkin discloses “ wherein the image is displayed from the display means in response to an inquiry” as (page 209, Fig 7, prototype reader is inquiring for an image from the diffractive area code ).

**As per claim 28**, Tompkin discloses “ wherein the first optical system means and the second optical system means are lens arrays which utilize a one dimensional light distribution” as (page 208, Fig 6, and page 211, line 8-9, Optics and detector array are lens arrays , those arrays produce one dimensional light distribution ).

**As per claim 29**, Tompkin discloses “wherein the first optical system means and the second optical system means are lens arrays which utilize a two dimensional light distribution” as (page 204, line 12-13, two-dimensional object is recorded as a phase mask which reconstructs the object upon illumination ).

**As per claim 30**, Tompkin discloses “ wherein the image is a hologram pattern” as ( page 204, line 11-12, Computer generated hologram from images ).

**As per claim 31**, Tompkin discloses “wherein the image is a graphic pattern which does not exhibit a hologram effect” as ( page 204, line 11-14, The



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kinoform is a CGH which puts all diffract light into the final image , if final image pattern get changed it does not effect hologram ).

**As per claim 32**, Tompkin discloses “ wherein the first optical system means is a lens array comprising a plurality of lenses, and gaps are provided between the lenses” as ( page 211, line 8-9, The diffractive optical code of the sample using a cylindrical lens and there are gaps between lenses in the OVD ).

### ***Conclusion***

14. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See MPEP 707.05(c).

15. The following reference teaches execution of trial data.

US 5841886

US 4792685

Machine – Verifiable diffractive features for document security.

A secure future for DOVIDS.

16. Any inquiry concerning this communication or earlier communication form the examiner should be directed to Abu Sholeman whose telephone number is (

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571)270-7314. the examiner can normally be reached on Monday to Friday 8:30 AM to 5.00PM.

If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Thomas Pham, can be reached at the following telephone number ( 571)2272-3689.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the either Private PAIR or public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pari-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center(EBC) at 866-217-9197(toll-free).

November 10, 2008  
/A.S./

Abu Sholeman  
Examiner  
Art Unit 4148

/THOMAS K PHAM/

Supervisory Patent Examiner, Art Unit 4148

